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REVIEWS

Scientific Management and Labor. By ROBERT FRANKLIN HOXIE.
New York: Appleton, 1915.

In the long contest with machinery and division of labor the all-round skilled mechanic has seen his skill turned over to the employer who owns the machine and directs the unskilled laborer who has taken his place. In only a few cases, such as that of the printers, has the trade union been able to "capture the machine" and to secure for its members a share of the increased product. In many cases the union has disappeared, or, if it has reappeared, it has done so, not in the form of a limited union of a particular craft, but in that of an industrial union including all who work in the shop.

Now "scientific management" suddenly appears, with the purpose of turning over to the employer the remainder of the skill which the craftsman still retains in his head and hand not yet transferred to machinery. The object of invention, here, is not that of a substitute machine, but an analysis of the very motions that constitute the skill itself; the breaking up of these motions into their elementary parts; the elimination of waste motions and the selection of time-saving motions; the timing of each motion by a stop watch, and the recording of both time-saving motions and their standard times on instruction sheets, by which almost any unskilled laborer can learn quickly to do the work. These time-and-motion sheets and instruction cards are the property of the employer, and with them goes the craftsman's former ownership of his trade secrets and personal skill, on which his bargaining power and trade union depended.

Not only this, but the time-and-motion studies make it possible to introduce new and ingenious methods of payment which take away from each individual worker the feeling of dependence on his fellow-workmen for the protection which a trade union affords. When a set of motions is timed and a standard time is set for completing the motions, then each workman is induced by the offer of a bonus to reduce the time, to exceed the "task," and to look to himself instead of his fellows for higher wages.

Thus scientific management becomes, not merely an extension of machine methods into the human machine, but an extension of scientific psychology into working-class psychology. No wonder that this subject is the most fundamental and irrepressible of the conflicts of capital and labor; for it is nothing less than the struggle between centralized efficiency and distributive democracy.

So broad and deep is the subject that Mr. Hoxie does not pretend to have covered it in this short treatise. "Some vital matters," he says, "have been discussed very briefly and one important topic—unfounded and unproved trade union charges against scientific management—has been omitted altogether" (p. vi). He hopes in a later study to discuss these omitted topics fully. Indeed, without them, the present work is but one side of the subject. It is to be hoped that he may have the opportunity of finishing his work in the thoroughly admirable and scientific manner thus far employed.

For he tells us here his entire method: first, a prolonged study of the controversial literature; then two preliminary statements, submitted by him to the opposite sides, on "Labor Claims of Scientific Managers" and "Trade Union Objections to Scientific Management"; then the boiling down of these statements to some two hundred "vital points at issue"; then a questionnaire submitted to employers and employees designed to force the issue on each of these points; then the selection of 35 shops, designated, "with a few special exceptions," by scientific managers; then investigation in these shops accompanied by a chosen representative of the American Federation of Labor and a representative of "employing management," both of whom attached their signatures and gave their "unqualified approval" to his conclusions and to the monograph now published. There could scarcely be a more thoroughly verified piece of investigation or a more surely justified set of conclusions, on so critical a subject of hostile interests, except for the inability of the author to take the final step of submitting it, before publication, to the criticisms of the employers, scientific managers, and labor leaders whose shops, claims, and objections had been investigated. Doubtless before he finishes the second half of his work this also will be done.

Hoxie's method of investigation, which I have just called "scientific" as applied to the social sciences, is in interesting contrast to the same term as appropriated by the originators of scientific management. Hoxie analyzes Taylor's claim of "scientific laws," and these turn out to be just the same *ipse dixit* which in former days was known as "divine law" and latterly as "natural law." They simply stop further discussion and that ends it. "As reasonably," quoting from Mr. Taylor, "might we insist on bargaining about the time and place of the rising and setting of the sun" (p. 40).

But Hoxie discovers that it takes a highly mathematical and capable astronomer, and many of them together, to ascertain and predict even so precise a thing as the rising and setting of the sun. "Far from being the invariable and purely objective matters that they are pictured," he says, "the methods and results of time study and task setting are, in practice, the special sport of individual judgment and opinion, subject to all the possibilities of diversity, inaccuracy, and injustice that arise from human ignorance and prejudice" (p. 40). "Scientific management as a movement is cursed with fakirs. The great rewards which a few leaders in the movement have secured for their services have brought into the field a crowd of industrial patent medicine men" (p. 117).

There are seventeen points, Hoxie has counted, where "the judgment of the employer, the time study man, or the workers may be exercised so as to produce variation that will affect and alter the task itself" (p. 46). That is, there are seventeen different movable points of observation, from each of which three different persons, with three different interests to serve, may set down three different times for the same sun to rise at the same place. Some of these variables have a list of subvariations as follows: "(1) the general attitude, ideas, and purposes of the management and the consequent general instructions given to the time study man"; "(5) the mode of selection of the workers to be timed and their speed and skill relative to the other members of the group"; "(7) the atmospheric conditions, time of day, time of year, the mental and physical condition of the workers when timed and the judgment exercised in reducing these matters to the normal"; "(11) the judgment of the time study man as to the pace maintained under timing relative to the 'proper,' 'normal,' or maximum speed which should be demanded"; and so on for seventeen varieties (pp. 46, 47).

And what is the class of men hired by scientific managers actually to do this class of work, "the most crucial in the scheme of scientific management"?

> The best men in this work are perhaps technically qualified, but . . . . the best of them are technicians with little knowledge of the subject of fatigue, little understanding of psychology and temperament, little understanding of the viewpoint and problems of the workers, and almost altogether lacking in knowledge of and interest in the broader economic and social aspects of working class welfare. The bulk of the time study men encountered were immature men drawn from the shop or college. . . . . [They] were found to be prevail-

> ingly of the narrow-minded mechanical type, poorly paid and occupying the lowest positions in the managerial organizations. . . . . The start is often made at $15.00 a week. A good time study man, according to current standards, can be had at from $75 to $100 per month, and $125 per month is a rather high rating for experienced men. . . . . In fact, the time study man, who, if scientific management is to make good the most important of its labor claims, should be among the most highly trained and influential officials in the shop, a scientist in viewpoint, a wise arbiter between employer and workmen, is, in general, a petty functionary, a specialist workman, a sort of clerk, who has no voice in the counsels of the higher officials.

Thus the time when the workman's sun shall be ordered to rise and set is fixed, for the most part, not by the scientist, but by his clerks.

Again, in addition to his method of investigation, Hoxie sets forth his two standards of judgment by means of which he passes upon the merits of scientific management. The first standard is "what it proves to be in its actual operation," and "not what the ideals or theories of its advocates or opponents would have it to be." By this standard he finds some shops which approach in some particulars the ideals of its advocates and many that refute some of the objections of its opponents. Consequently he consistently distinguishes throughout between scientific management "at its best" in practice and scientific management in other shops not at its best. Naturally the conclusions based on such a standard cannot be satisfactory either to advocates or to opponents. They ought, however, to be satisfactory to those who wish to perpetuate "the best" of scientific management and to eliminate the rest.

But this standard is modified by his second one. What is the character, the scope of scientific management, even at its best? Again, he rejects the "theories of its leaders" and adopts as his standard of judgment what actually "exists and persists" in the best shops. Here he finds the absence of one thing which the leaders declare to be the "essence of scientific management," namely, "democracy" (pp. 4, 5).

Evidently the term "democracy" has a double meaning as used by the scientific managers and Hoxie. These two meanings Hoxie very keenly distinguishes. One is the "democracy of science" which sweeps away "the personal authority of the employer and the arbitrary rules and regulations of the workmen with all the machinery for negotiations and the enforcement of decisions created by both, and substitutes in all matters the impersonal dictates of natural law and fact" (p. 100). Such a "democracy of science" springs from a theory of "fundamental harmony of interests" of employer and employee. If these interests are "naturally" harmonious, then there is no need of negotiation and bargaining. All that is needed is exact measurement, as in the physical sciences.

The other definition of democracy is such an arrangement as "gives the workers power and opportunities, as compared with the employers, to express and advance their viewpoint and enforce their demands" (pp. 103, 104). This is the democracy of equality of bargaining power. Such democracy does not exist in scientific management shops at their best, for "the power of the individual worker against the employer is weakened" (p. 104) and "with rare exceptions" unionism and collective bargaining do not exist (p. 109).

Other topics covered by the book are the incompleteness and hurry of installation of scientific management, "functional foremanship," selection and hiring, instruction and training, specialization of workers, rate-making, modes of payment, maintenance of rates, overexertion and exhaustion, advancement and promotion, discipline, discharge and length of service, industrial democracy, and collective bargaining. To discuss them all would require several papers. They cover, we may say, almost the whole trend of modern business with reference to labor.

Whether it be called scientific management, or something else, the fact is that it is part of a resistless movement for business efficiency which cannot be suppressed either by labor or by government. The union that suppresses it will drive business to non-union shops, and the government that suppresses it will succumb to other nations. Seeing this outcome, Hoxie holds that "the main demands are for a frank recognition of the trend of events and for some method of putting back into the worker's life the content which he is losing as the result of increasing specialization and the abandonment of the old apprenticeship."

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Inventors and Money-Makers. Lectures on Some Relations between Economics and Psychology. By F. W. TAUSSIG. New York: Macmillan, 1915. Pp. ix+138.

These three semi-popular lectures constitute in the main a criticism of the Utilitarian contention that a conscious self-interest must be at the basis of all wealth production. The argument is interesting as an illustration of the influence which biology is coming to exert upon economic theory, for its final appeal is to man's instinctive equipment. The